

BAYER ADVANCED LLC
1500 Urban Center Dr.
Birmingham, AL 35242

TRANSPORTATION EMERGENCY:

CALL CHEMTREC: (800) 424-9300
 DISTRICT OF COLUMBIA: (202) 483-7616

1. CHEMICAL PRODUCT IDENTIFICATION:

PRODUCT NAME: BAYER ADVANCED LAWN Fungus Control for Lawns
 Ready-To-Spread Granules
PRODUCT CODE: 42001
CHEMICAL FAMILY: Triazole Fungicide
CHEMICAL NAME: 1-(4-Chlorophenoxy)-3,3-dimethyl-1-(1H-1,2,4-triazol-1-yl)-2-butanone
SYNONYMS: Triadimefon
FORMULA: C₁₄ H₁₆ Cl N₃ O₂
PRODUCT USE: Consumer Fungicide

2. COMPOSITION/INFORMATION ON INGREDIENTS:

INGREDIENT NAME

/CAS NUMBER	EXPOSURE LIMITS	CONCENTRATION (%)
***** HAZARDOUS INGREDIENTS *****		
BAYLETON (triadimefon)		
43121-43-3	OSHA : Not Established ACGIH: Not Established	Nominal - 1%
Ingredient 1497		
Specific chemical identity is withheld as a trade secret.		
	OSHA : Not Established ACGIH: Not Established	1-3%

3. HAZARDS IDENTIFICATION:

EMERGENCY OVERVIEW CAUTION!

Color: Beige; **Form:** Solid; Free flowing granules; **Odor:** Mild ketone; Harmful if inhaled; Harmful if absorbed through skin; Causes eye irritation; Harmful if swallowed.

POTENTIAL HEALTH EFFECTS:

ROUTE(S) OF ENTRY: Inhalation; Skin Contact; Skin Absorption; Eye Contact

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:

ACUTE EFFECTS OF EXPOSURE: Exposure during the labeled use of this product is expected to minimal. Consumers should refer to the packaging label for proper handling procedures. Based on the EPA Toxicity Category criteria, this product is mildly toxic orally and dermally. Animal studies have shown that it can cause mild irritation to the cornea, iris and conjunctiva with all remarkable irritation resolving within 3 days.

CHRONIC EFFECTS OF EXPOSURE: Based on the results of animal studies, no deleterious effects or symptoms would be expected from chronic exposure to the active ingredient in this product during normal use.

CARCINOGENICITY: This product is not listed by NTP, IARC or regulated as a carcinogen by OSHA.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: No specific medical conditions are known which may be aggravated by exposure to this product.

NON-TRANSPORTATION:

BAYER EMERGENCY PHONE: (877) 229-3763
 BAYER INFORMATION PHONE: (877) 229-3724

4. FIRST AID MEASURES:

FIRST AID FOR EYES: Hold eyelids open and flush with copious amounts of water for 15 minutes. Call a physician if irritation persists or develops after flushing.

FIRST AID FOR SKIN: Remove contaminated clothing. Wash skin with soap and water. Get medical attention if irritation persists. If signs of intoxication (poisoning) occur, get medical attention immediately.

FIRST AID FOR INHALATION: First, remove victim to fresh air or uncontaminated area. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention as soon as possible.

FIRST AID FOR INGESTION: If ingestion is suspected, call a physician or poison control center. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by physician or poison control center. Do not give anything by mouth to an unconscious person.

NOTE TO PHYSICIAN: Treat symptomatically.

5. FIRE FIGHTING MEASURES:

FLASH POINT: Not Applicable

EXTINGUISHING MEDIA: Water

SPECIAL FIRE FIGHTING PROCEDURES: If involved in a fire, wear self-contained breathing equipment.

6. ACCIDENTAL RELEASE MEASURES:

SPILL OR LEAK PROCEDURES: Carefully sweep up spilled granules and place in covered container. Scrub contaminated area with soap and water.

7. HANDLING AND STORAGE:

STORAGE TEMPERATURE(MIN/MAX): None/30 day average not to exceed 100°F

SHELF LIFE: Time/temperature-dependent. Contact Bayer for additional information.

SPECIAL SENSITIVITY: Heat, moisture

HANDLING/STORAGE PRECAUTIONS: Store in a cool dry area designated specifically for pesticides. Do not store near any material intended for use or consumption by humans or animals.

8. PERSONAL PROTECTION:

REQUIRED WORK/HYGIENE PROCEDURES: Exposure during the labeled use of this product is expected to be minimal. Consumers should refer to the packaging label for proper handling procedures. However, if exposure to this product is possible while handling large quantities such as in subsequent manufacturing, transportation spills or other emergencies, the following personal protection is recommended.

EYE PROTECTION REQUIREMENTS: Goggles should be used when needed to prevent granular material or dust from getting into the eyes.

PERSONAL PROTECTION (Continued):

SKIN PROTECTION REQUIREMENTS: The use of chemical-resistant gloves to prevent skin contact is recommended as good practice.

VENTILATION REQUIREMENTS: Maintain exposure levels below the applicable exposure limit through the use of general and local exhaust ventilation where needed.

RESPIRATOR REQUIREMENTS: Under normal handling conditions, no respiratory protection is needed; however, when potential exposure to product dust is excessive, wear a NIOSH-approved particulate respirator.

ADDITIONAL PROTECTIVE MEASURES: Clean water should be available for washing in case of eye or skin contamination. Educate and train employees in safe use of the product. Follow all label instructions. Launder clothing after use. Wash thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES:

PHYSICAL FORM:	Solid
APPEARANCE:	Free flowing granules
COLOR:	Beige
ODOR:	Mild ketone
ODOR THRESHOLD:	Not established
MOLECULAR WEIGHT:	293.8 (for triadimefon)
pH:	Not established
BOILING POINT:	Not applicable
MELTING/FREEZING POINT:	Not applicable
SOLUBILITY IN WATER:	64 ppm @ 20°C (for triadimefon)
SPECIFIC GRAVITY:	Not established
BULK DENSITY:	28-33 lbs/cu ft
% VOLATILE BY VOLUME:	Not Established
VAPOR PRESSURE:	1.5 x 10 ⁻⁷ mm Hg @ 20°C (for triadimefon)
VAPOR DENSITY:	Not established (Air = 1)

10. STABILITY AND REACTIVITY:

STABILITY: This is a stable material.

HAZARDOUS POLYMERIZATION: Will not occur.

INCOMPATIBILITIES: Strong oxidizing agents, acids

INSTABILITY CONDITIONS: Not Noted

DECOMPOSITION PRODUCTS: Proposed due to fire or other extreme conditions: HCl, amines, nitrogen oxides, CO

11. TOXICOLOGICAL INFORMATION:

Only acute studies have been performed on this product as formulated. The non-acute information pertains to the active ingredient, triadimefon.

ACUTE TOXICITY:

ORAL LD50: Male & Female Rat: >2500 mg/kg

DERMAL LD50: Male & Female Rabbit: >2000 mg/kg

INHALATION LC50: 4 Hr. Exposure to Dust: 4 Hr. analytical LC50 data not available.

EYE EFFECTS: Rabbit: Mild irritation to the cornea, iris and conjunctiva was observed with all remarkable irritation resolving within 3 days.

SKIN EFFECTS: Rabbit: Not a dermal irritant.

SENSITIZATION: Guinea Pig: Not a dermal sensitizer.

SUBCHRONIC TOXICITY:

In a 4 week dermal toxicity study, rabbits were exposed to the active ingredient for 7 hours/day, 5 days/week, at levels of 50 and 250 mg/kg. Slight dermal irritation was exhibited by rabbits of both dose groups. In a 3 week

TOXICOLOGICAL INFORMATION (Continued):**SUBCHRONIC TOXICITY continued:**

dermal toxicity study, rats were treated with triadimefon at levels of 100, 300 or 1000 mg/kg for 6 hours/day, 5 days/week. At 1000 mg/kg, behavioral changes observed included increased reactivity and increased activity. Based on clinical signs, the no-observed-effect-level (NOEL) was 300 mg/kg. In a subchronic inhalation study, rats were exposed to triadimefon for 6 hours/day, for 15 days to liquid aerosol concentrations of 78.7 and 307 mg/cubic meter. The no effect concentration was 78.7 mg/cubic meter. Liver weights were increased at 307 mg/cubic meter.

CHRONIC TOXICITY:

In a 2 year study, dogs were administered triadimefon at dietary concentrations of 100, 330 or 1000 ppm. The high dose was administered at 1000 ppm for 54 weeks and then increased to 2000 ppm for the remainder of the study. Liver weights and liver enzyme levels were increased at the high dose, however, histopathological examinations did not reveal any damage to the liver. The NOEL was 330 ppm. When rats were administered triadimefon for 2 years at dietary concentrations ranging from 50 to 1800 ppm, the NOEL was 300 ppm. Effects observed at the high dose included reduced body weights, increased feed consumption, changes in serum chemistries, increased liver weights and thyroid effects.

CARCINOGENICITY:

Triadimefon was tested for carcinogenicity in 2 feeding studies using rats. In the first study, rats were administered dietary concentrations of 50 or 500 ppm for 2 years. No evidence of a carcinogenic effect was found. In the second study, triadimefon was administered for 2 years at dietary concentrations of 50, 300 or 1800 ppm. At the high dose only, there was a slight increase in the incidence of benign follicular adenomas of the thyroid. In oncogenicity studies using mice, triadimefon was administered at dietary concentrations of 50, 300 or 1800 ppm. At the high dose only, there was an increase in the incidence of benign liver tumors. No increase in malignant tumors occurred.

MUTAGENICITY:

Numerous in vitro and in vivo mutagenicity studies have been conducted on triadimefon, all of which are negative.

DEVELOPMENTAL TOXICITY:

In developmental toxicity studies using rats, triadimefon was administered during gestation at oral doses ranging from 10 to 100 mg/kg. The overall NOELs derived from these studies for maternal and developmental toxicity were 10 and 30 mg/kg, respectively. In an inhalation development toxicity study, rats were exposed to triadimefon during gestation at liquid aerosol concentrations of 14.0, 33.2 or 113.7 mg/cubic meter for 6 hours/day. The NOEL for maternal toxicity was 14.0 mg/cubic meter. No developmental effects were observed. In developmental toxicity studies using rabbits, triadimefon was administered during gestation at oral doses ranging from 5 to 120 mg/kg. The overall NOEL derived from these studies for both maternal and developmental toxicity was 20 mg/kg.

REPRODUCTION:

In reproduction studies, triadimefon was administered to rats at dietary concentrations of 50, 300 or 1800 ppm. At 1800 ppm, reproductive effects including smaller litter sizes, reduced litter weights, and reduced viability and lactation were observed; at this dose, parental body weight gains were depressed and a reduction in mating occurred. The reproductive NOEL was 300 ppm.

NEUROTOXICITY:

In acute and subchronic neurotoxicity screening studies using rats, triadimefon caused neurobehavioral changes related to hyperactivity. The origin of hyperactivity development has been elucidated by a number of mechanistic studies in the published literature and was shown to be a pharmacotoxicological phenomenon involving dopaminergic neurotransmitter systems. There were no micropathologic findings in the skeletal muscle or neural tissues in either study. The NOEL in the acute

TOXICOLOGICAL INFORMATION (Continued):

NEUROTOXICITY continued:

neurotoxicity study for irreversible effects on the nervous system was 600 mg/kg for males and 450 mg/kg for females, the highest dose tested for each sex. In the subchronic neurotoxicity study the NOEL for irreversible effects on the nervous system was 2200 ppm for males and females, the highest dose tested.

12. ECOLOGICAL INFORMATION:

This product has been thoroughly evaluated for ecological effects. Bayer will provide a summary of specific data upon written request. As with any pesticide, this product should be used according to label directions and should be kept out of streams, lakes and other aquatic habitats of concern. In event of a spill emergency, call 1-800-414-0244.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Follow container label instructions for disposal of wastes generated during use in compliance with the FIFRA product label. In other situations, bury in an EPA approved landfill or burn in an incinerator approved for pesticide destruction. Do not reuse container.

14. TRANSPORTATION INFORMATION:

TECHNICAL SHIPPING NAME: Triadimefon
FREIGHT CLASS PACKAGE: Fungicides, NOI (NMFC 102120)
PRODUCT LABEL: Not Noted
DOT (DOMESTIC SURFACE)
HAZARD CLASS OR DIVISION: Non-Regulated
IMO / IMDG CODE (OCEAN)
HAZARD CLASS DIVISION NUMBER: Non-Regulated
ICAO / IATA (AIR)
HAZARD CLASS DIVISION NUMBER: Non-Regulated

15. REGULATORY INFORMATION:

OSHA STATUS: This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
TSCA STATUS: This product is exempt from TSCA Regulation under FIFRA Section 3 (2)(B)(ii) when used as a pesticide.
CERCLA REPORTABLE QUANTITY: No components listed
SARA TITLE III:
SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES: No components listed
SECTION 311/312 HAZARD CATEGORIES: Immediate Health Hazard
SECTION 313 TOXIC CHEMICALS: Triadimefon - CAS No. 43121-43-3 (1%)
RCRA STATUS: If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24) This product is not a hazardous waste under RCRA.

16. OTHER INFORMATION:

NFPA 704M RATINGS:

Health 1	Flammability 0	Reactivity 1	Other
0=Insignificant	1=Slight	2=Moderate	3=High
			4=Extreme

Bayer's method of hazard communication is comprised of Product Labels and

Material Safety Data Sheets. NFPA ratings are provided by Bayer as a customer service.

REASON FOR ISSUE: Revise Product Name
PREPARED BY: V. C. Standart
APPROVED BY: D. C. Eberhart
TITLE: Product Safety Manager
APPROVAL DATE: 10/03/2001
SUPERSEDES DATE: 05/30/2000
MSDS NUMBER: 38429

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